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# Environmental Assessment

## Weaver Mountain Fuels Treatment Project

AZ-020-2002-0094

A President's Healthy Forest Initiative Project

Phoenix Field Office, Arizona BLM  
Yavapai County, Arizona



West view from Wild Horse Mesa, Photo by W. Boyett

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The Bureau of Land Management is responsible for the stewardship of our public lands. It is to manage, protect, and improve these lands in a manner to serve the needs of the American people for all times. Management is based on the principles of multiple use and sustained yield for our nation's resources within a framework of environmental responsibility and scientific technology. These resources include: recreation; rangelands; minerals; timber; watersheds; fish and wildlife; wilderness; air; and scenic and cultural values.

# **INTRODUCTION**

## **General Setting**

The Weaver Mountain area has been identified as a hazardous fuels treatment area, which is a priority listed in the National Fire Plan, (<http://www.fireplan.gov>.) Because of the dense growth of wildfire-prone vegetation in close proximity to the Prescott National Forest and other Value Protection areas, the Bureau of Land Management (BLM) has identified this project as a part of the management strategy for the Weaver Mountains.

The proposed treatment area is located in Yavapai County; Wickenburg, Arizona (AZ) lies seventeen (17) miles to the south, southwest. The proposed project area is located in the Bradshaw/Harquahala Resource Management Planning (RMP) area. The southern boundary of the proposed project area is directly north of the Hassayampa Wilderness area; see Appendix A, for Weaver Mountain Fuels Treatment Project Map. The proposed project area lies within:

T9 N, R3 W, Sec 6;  
T9 N, R4 W, Sec 1–4;  
T10 N, R3 W Sec19–20, 30–32;  
T10 N, R 4 W, Sec 14–16, 20–29, and 32–36

The proposed project analysis area within the Weaver Mountains consists of approximately 8,950 acres of BLM managed lands, 4,000 acres of Arizona (AZ) State Lands and 1,100 acres of private ownership, resulting in approximately 14,000 total acres.

Management-ignited burns conducted in the fall, winter, or spring months will reduce dense concentrations of chaparral brush.

## **Purpose and Need for the Action**

### **Existing Condition**

The area of the Weaver Mountain Fuels Treatment Project is dominated by dense interior chaparral vegetation, which is in Fire Condition Class 3 (see Glossary). Common goals for the vegetative community analyzed in this document include restoring and maintaining natural, healthy fire dependant ecosystems and reducing the threat of catastrophic wildfire to associated plant communities.

### **Desired Future Condition**

The desired future condition (DFC) would have thirty to sixty percent less dense interior chaparral vegetation, which would improve wildlife and livestock habitat and reduce the potential for large wildfires in the proposed project area. The desired future condition is to mimic a more natural fire regime, moving the proposed project area towards Fire Condition Class 1, within five to ten years.

### **Need for Action**

Management ignited fire and mechanical treatment are needed to reduce the risk of catastrophic wildland fire in the Weaver Mountain area and provide for public and firefighter safety. The specific objectives for this project area are to: 1) create a mosaic pattern of burned/treated vegetation; 2) reduce the threat of large wildland fires; and 3) maximize benefits to domestic livestock and wildlife.

## **Conformance with Other Plans**

The proposed action is consistent with the Federal Land Policy and Management Act and is the type of action assessed by the Final Environmental Impact Statement (FEIS), and authorized by the Record of Decision (ROD), for the Phoenix Resource Area Plan, 1988, as amended, see Chapter 2, page 17, sections Fire and Environmental Management.

The proposed action is also consistent with the actions evaluated in the Final Environmental Impact Statement for Vegetation Treatment on BLM Lands in Thirteen Western States, 1991, Environmental Consequences, Chapter 3, pages 14-22.

## **ALTERNATIVES, INCLUDING THE PROPOSED ACTION**

This section provides a detailed description of the no action, the proposed action alternatives, and an alternative eliminated from detailed study. This section includes mitigation measures for achieving the project purpose and need.

### **Alternative 1 - No Action Alternative**

Under this alternative, there would be no management-ignited fuel treatment projects within the proposed project area. This alternative does not meet the purpose and need statement for the action, as well as not meeting the intent of the 2000 National Fire Plan. Current management, including full suppression of all wildfires, would continue in the proposed project area. The risk of catastrophic wildfire is high, with unknown impacts to the resources in the project area.

### **Alternative 2 - Proposed Action**

The Phoenix Field Office proposes to conduct management-ignited fire on approximately 14,000 acres of intermingled lands to reduce interior chaparral within the proposed analysis area, the Weaver Mountains. The proposed treatment areas would vary in size ranging from approximately 1,000 to 3,000 acres annually, for five to ten (5-10) years.

Conducting multiple treatments over five to ten years would minimize the possible impacts to the watershed from overland flow (sediment from scorched and/or exposed soil). The treatments in the various areas have been designed to mimic conditions that would be created by a more natural fire regime with a diverse mixed-aged stand of interior chaparral developing over the next ten to twenty (10-20) years.

The objective is to create a mosaic pattern of burned and unburned areas within the unit to reduce the threat of large wildfires and maximize benefits to wildlife and domestic livestock grazing. Interior chaparral vegetation may be ignited using hand held drip torches, terra torch (ignition device mounted to a vehicle), or a helitorch (firing mechanism attached to a helicopter). Existing roads, washes, and natural fuel breaks would be used to contain the fire within the project area. Black-lining may be used to improve the effectiveness of a control line in some areas. Black-lining is the process by which firefighters widen an existing fire control line by burning along its edge under controlled conditions. The burning activity, including black lining and broadcast burning, would be completed in three to five days.

The following mitigation measures would be implemented as part of the proposed action, and would be applicable to all fuels treatments throughout the life of this project:

1. Fire would be excluded from all riparian areas within the project area. A =75-foot buffer of unburned vegetation (from the outer extent of riparian vegetation) would be maintained along all riparian zones to avoid impacting these areas.
2. No more than 15–20% of the steep slopes (>30%) would be burned within the project area to reduce sediment that may enter springs or streams.
3. To avoid impacting desert tortoises, fire would not be introduced into desertscrub vegetation and would be applied far enough away from transition areas (i.e., between interior chaparral and desertscrub) to minimize the likelihood of fire escaping into fire-intolerant desertscrub. Fire would also not be applied directly to small patches of interior chaparral surrounded by desertscrub or within 50 feet of large boulder piles.
4. Ignition patterns would facilitate a mosaic pattern of burned and unburned patches within the project area. No more than 50–60% of the treatable area would be burned.
5. Fuel breaks would be constructed around Arizona cypress stands prior to project implementation to minimize the potential for burning entire cypress stands.
6. Permitted livestock grazing activities in the area would be coordinated with the permittee/lessee to reduce potential conflicts between livestock grazing and seasonal timing of project implementation.
7. Low-level flights within the Hassayampa River Canyon Wilderness may be needed for ignition or for suppression activity. Prior to these flights line officer or delegated resource advisor approval would be necessary.
8. Motorized or mechanical vehicles and equipment would only be allowed within the wilderness boundary with Line Officer approval or that of the delegated resource advisor.
9. Authorized livestock grazing for the affected allotments within the burn unit would be coordinated with the grazing lessee/permittee. This coordination would include deferment of livestock grazing to allow for fine fuel accumulation prior to treatment and allow for plant recovery post-treatment.
10. To reduce the spread of noxious and invasive weeds during fire management operations the following elements would be required where applicable:
  - a) Equipment would be cleaned prior to leaving for proposed project site.
  - b) During incident management planning process determine the potential for spreading noxious/invasive weeds while traveling to and from an incident and during suppression activities.
  - c) Resource advisors would be aware of noxious/invasive weed problems at the fire and around fire camps.
  - d) All equipment would be cleaned before entering a fire camp to minimize the introduction of noxious/invasive weeds from other areas.
  - e) Material such as gravel, hay, etc needed for camp setup, etc would be certified weed free and/or source location inspected or researched for weed seed potential.
  - f) Resource advisors would make a determination if equipment to be demobilized from a fire needs to be cleaned at site prior to release.

The following monitoring measure would be implemented as part of the proposed action, and would be applicable to all fuels treatments throughout the life of this project:

1. Due to dense vegetation after the first phase of treatment, a BLM Archeologist would conduct a post-treatment survey to predict the nature and location of prehistoric or historical sites that may exist in this area of the Weaver Mountains. The phased nature of fuels treatment allows for additional surveys or inspections prior to specific treatments.
2. Pre and post-vegetation monitoring would be conducted annually (for up to 10 years)\_by fuels staff, using existing permanent photo points to monitor changes in plant cover, weed invasion, and additional disturbances.

### **Other Alternative(s) Considered, but Eliminated from Detailed Study**

One alternative that was discussed and considered, but then eliminated from detailed study is described below, including the reason for it being eliminated. Based on BLMs experience with management-ignited fire and BLMs consultation and coordination with the public and public agencies (see “Consultation and Coordination” at p. 16-17), BLM has found no significant issues or unresolved conflicts concerning alternative uses of available resources that warrant consideration of additional alternatives.

#### **Alternative 3 – Mechanical Treatment Only**

Mechanical treatment only was identified but not analyzed in detail because it did not meet the purpose and need. Mechanical treatment only would not be applicable due to the topography/access or economically feasible throughout the proposed project area to reduce the amount of interior chaparral to achieve the desired condition.

## **ENVIRONMENTAL IMPACTS**

Below is a description of the environmental effects of the no action and proposed action alternatives, where appropriate.

#### **Environmental Effects of Alternative 1 – No Action**

Under the No Action Alternative the management objectives (stated in the Purpose and Need section) would not be accomplished, such as improving forage conditions for wildlife and domestic livestock grazing and maintaining a mosaic of uneven-aged vegetation. The risk of catastrophic (see Glossary) wildfires would remain high. This alternative is the least responsive to meeting the expressed desires/needs for vegetation management and fire fighter safety.

#### **Environmental Consequences Alternative 2 – Proposed Action**

Under this alternative the desired vegetative communities would be enhanced, while establishing an uneven age vegetative community of interior chaparral. The risk of catastrophic wildfire would be reduced. This alternative is the most responsive to meeting the expressed desires/needs of vegetative management and fire fighter safety.

## Air Quality

### General

Air quality and visibility is generally good in this area, with little impact from metropolitan areas. The Phoenix Metro area lies approximately forty- (40) miles southeast of the proposed project area. The community of Prescott is located twenty (20) miles to the north, northeast. The small community of Yarnell is located four (4) miles northwest of the project area. The Hassayampa Wilderness Area (A Class 2 Airshed) is located two (2) miles south of the proposed project area.

### Alternative 1 – No Action

Air quality would be impacted only during a wildfire occurrence. Smoke impacts from wildfire are potentially more substantial than under the proposed action due to the amount of vegetation (fuels) consumed during a wildland fire, as compared to a management-ignited fire. Additional factors such, as unpredictable weather conditions and fire behavior during a wildfire would contribute to the smoke impact to the proposed project area. A large wildfire occurring during summer months could burn for several days and produce smoke impacts including visibility and air quality to several local communities, Yarnell, Mayor, Peoples Valley, and Prescott.

### Alternative 2 – Proposed Action

Local air quality would be temporarily impacted during implementation of management-ignited fires under the proposed action alternative. Smoke would be visible to local communities, though smoke emission impacts to these communities would be mitigated by implementing the project during favorable weather conditions and coordinating closely with Arizona Department of Environmental Quality (ADEQ). A site-specific burn plan would be developed to include procedures for minimizing the risk of smoke impacts. The proposed action would be in compliance with all AZ State and federal emissions and smoke management regulations. Management ignition techniques would be halted immediately if smoke impacts threatened or exceeded the state or federal regulations. This process is outline in the individual Burn Plan, Smoke Management section (BLM Handbook 9214, 2000).

## Cultural Resources

### General

Based on information from archaeological surveys in surrounding areas, and the rugged topography, the BLM would expect a low density of sites in the proposed project area. No archaeological sites have been documented within the proposed project area as determined through interviews with family members that have operated a ranch within the local area for 80 to 90 years. Native American tribes have not identified any specific sites, or areas of concern within the proposed project area. Field Office staff conducted a reconnaissance survey of selected areas and observed no sites within the proposed project area.

### Alternative 1- No Action

No action alternative could result in the damage of any unknown cultural sites by large, uncontrolled wildfires. The damage would become more severe with the increase of fuel loadings. In a catastrophic fire regime, cultural sites could be lost due to high intensity fires (increased hydration in obsidian,

spalling in rock art, burn wooden structures and increased oxidation of metal objects). Unknown sites could sustain some damage during wildfire suppression activities as the protection of other values, such as life and property, take precedence over protection of cultural resources, however the damage would be minimal.

## Alternative 2- Proposed Action

Low intensity management ignited fires may be less likely to destroy valuable archaeological data than large, uncontrolled wildfires. The proposed fuels treatment would reduce the potential of large catastrophic wildfires spreading through the project area and impacting cultural sites that may be present in the plant communities. Methods of fuels treatment have been designed to minimize impacts to cultural resources. The BLM's IM 90-52 states that "areas that would be subjected to surface disturbance would be inventoried at the Class III level...this includes fire control lines and fuel mixing areas that would be cleared by hand or machines." This provides for protection of unknown sites that may be near areas of potential ground disturbance, which would be limited to access roads and jeep trails, with surveys conducted in any areas of ground disturbance associated with fire ignition or management activities. Sites identified during these inspections would be avoided by surface disturbing activities and mitigation measures to protect these sites would be implemented as needed. The proposed fuels treatment could reveal and assist in the continued preservation of cultural sites in the area.

## Noxious and Invasive Weeds

### General

Presently these species have not been documented within the proposed project area. Complete inventories of the surrounding area have not been completed and the best available data is as follows: within Yavapai County, a number of invasive weeds have been identified. Among these weeds are several species of thistle, including bull, malta star, yellow star, scotch and musk. In addition, camelthorn, dalmation toadflax, diffuse, russian and spotted knapweed, halogeton, hoary cress, jointed goatgrass.

## Alternative 1- No Action

The current status of noxious weeds in the project area is unknown: noxious weed inventories have not been conducted. In the short-term, the risks of invasive weed increase would be similar to what is naturally occurring in the propose project area.

In the long-term the frequency of large, hot fires would continue to increase. Larger burned areas and fewer unburned islands within the burn would lead to longer recovery periods following the fire. Natural regeneration processes for species, which do not resprout after a fire would take longer due to the size of the burned area. This would decrease the edge effect for airborne seed establishment of native vegetation and result in longer periods of vulnerability to noxious and invasive species. This would increase the potential for the spread of invasive weeds and the potential of noxious weeds into the burned areas over the long-term.

Burned areas would result in new succulent growth as well as open up areas that have before been inaccessible to livestock due to extensive vegetative growth.



## Alternative 2- Proposed Action

The risk of weed introduction would be reduced after management ignited fire with the re-establishment of perennial grasses, forbs, and shrubs creating an environment where noxious and invasive weeds would be less competitive. Proposed action mitigation measure number 10 would be implemented to reduce the potential spread of noxious and/or invasive weeds during fuels management treatments. The listed mitigation and monitoring measures would be included in the proposed project Prescribed Burn Plan in accordance with the BLM- Handbook 9214, Appendixes 3-7, pages 58-103.

As a result of pre-project planning and proper post-fire management of livestock grazing and recreational use the potential for of noxious and invasive weeds establishment and spread could be reduced.

## Rangeland Management

### General

The proposed project area would affect portions of four (4) BLM domestic livestock grazing allotments: Cooper Ranch, Moralez, Whitehead, and Michaels.

The Cooper Ranch Allotment consists of approximately 12,143 acres of public lands. The permitted livestock numbers are 2,220 animal unit months (AUMs) or 185 head of cattle yearlong. The proposed project acres within the ranch boundary are approximately 6,400 acres public land, 180 acres private and 1,120 acres AZ State Lands. The permittee/lessee has taken partial non-use this grazing year and cattle are not present on the treatment area to allow for fuel accumulation prior to treatment.

The Moralez Allotment consists of approximately 6,822 acres of public lands. The permitted livestock numbers are 826 AUMs or 86 head of cattle yearlong. The proposed project acres within the ranch boundary are approximately 1,900 acres public land, 320 acres AZ State Lands. The permittee/lessee is unable to use the portion of the ranch within the treatment area because of unavailable forage due to the dense, decadent interior chaparral.

The Whitehead Allotment consists of approximately 1,598 acres of public lands. The permitted livestock numbers are 288 AUMs or 24 head of cattle yearlong. There are no public land acres within the treatment area except 500 acres AZ State Lands. The permittee/lessee is unable to use the portion of the ranch within the treatment area because of unavailable forage due to the dense, decadent interior chaparral.

The Michaels Allotment consists of approximately 4,746 acres of public lands. The permitted livestock numbers are 516 AUMs or 43 head of cattle yearlong. The proposed project acres within the ranch boundary are approximately 640 acres public land and 1,280 acres AZ State Lands. The permittee/lessee is unable to use the portion of the ranch within the treatment area because of unavailable forage due to the dense, decadent interior chaparral.

## Alternative 1- No Action

In the short-term, there would be no impacts to the authorized domestic livestock grazing of the four (4) allotments within the proposed project area. Livestock grazing would continue to be authorized at the current levels, and the permittees/lessees would not have permitted cattle numbers changed.

In the long-term, authorized livestock grazing could be decreased from current levels. As more forage within the allotments becomes unavailable due to decadence and unavailability to livestock, the areas that are available for livestock grazing would have a higher utilization. These higher utilization levels would have to be addressed at the time of the grazing lease renewal through the Arizona Rangeland Health Standards and Guidelines.

## Alternative 2- Proposed Action

In the short-term, there would be minimal impacts to the authorized livestock grazing of the four (4) allotments within the proposed project area. The size of the treatment area within the respective grazing allotments is small enough to not warrant a change of numbers from present authorized livestock numbers. There are no range improvements within the treatment area that would attract livestock into the treatment area. Livestock grazing would be deferred in the treatment area until vegetation has recovered. These allotments are custodial and maps of the allotments with range improvements are not available.

In the long term, it is anticipated that an increase in available forage as a result of the treatment would change the current utilization patterns. Livestock presently do not use the area due to vegetative decadence and unavailability of existing forage. The treatment would cause an increase of new vegetative growth that would become available to livestock. The treatment would assist in achieving Standard 1 (Upland Sites - Upland Soils exhibit infiltration, permeability and erosion rates that are appropriate to soil type, climate and landform.) and Standard 3 (Desired Resource Condition - Productive and diverse upland and riparian-wetland communities of native species exist and are maintained) of the Arizona Rangeland Health Standards and Guidelines.

## Wilderness and Proposed Wilderness Study Areas

### General

The Arizona Wilderness Coalition (AWC) proposed approximately 8,300 acres within the proposed project area for wilderness study in February 2003. The AWC submitted this proposal to the BLM as a Scoping Comment on the Bradshaw/Harquahala RMP, requesting that public lands surrounding Round Mountain be examined for wilderness. The area surrounding Round Mountain rises to 5,395 feet and is basically a high plateau, dominated by thick Interior chaparral, scrub oak, manzanita, and mountain mahogany plants. There are three short jeep trails and one abandoned jeep track in the area proposed for wilderness consideration by the AWC. The three active jeep routes total about 2.5 miles in length.

The proposed project area has a natural appearance to the casual public observer. There are good to outstanding opportunities for solitude. Interior chaparral provides very effective screening throughout the Round Mountain area; many people could be in the area without being aware of others. Opportunities for primitive and unconfined recreation are good for hunting, hiking and camping, but visitor movement is constrained by areas of nearly impenetrable scrub cover. Recreation use is light and infrequent due to limited access, primitive roads and trails, and rugged terrain.

Arizona cypress, a native evergreen tree, occurs within the proposed project area and wilderness study proposal. The presence of Arizona cypress tree stands offers a supplemental natural value. A supplemental value is an ecological feature of scientific, scenic or historical value.

## Alternative 1- No Action

The Hassayampa River Canyon Wilderness would not be directly impacted by the no action alternative as the identified proposed fuels treatment area falls outside wilderness. About 8,300 acres of public land proposed for wilderness study would not be treated. These lands would continue to look natural in appearance. Existing solitude opportunities would remain unchanged. Use by hikers and hunters would continue, but freedom of movement could be constrained by dense scrub cover. Arizona cypress stands would not be potentially burned due to this management-ignition fire project.

The area proposed for wilderness study would still be subject to natural ignition fires. The Hassayampa River Canyon Wilderness is lower in elevation than the proposed project area and is dominated by a fire-intolerant paloverde-saguaro Sonoran Desert community and riparian vegetation. An uncontrolled spring or summer wildfire igniting within the higher interior chaparral areas could conceivably burn down slope, spreading into the wilderness area's fire-intolerant Sonoran Desert upland and riparian plant communities. This would cause a long-term loss of natural plant cover within the wilderness. A casual visitor would perceive the wilderness area as unnatural after a catastrophic wild fire event.

## Alternative 2 – Proposed Action

Two (2) separate areas within the proposed project area were identified and are analyzed in this document. Approximately 8,300 acres within the proposed project area are within lands proposed for wilderness study by the Arizona Wilderness Coalition (AWC). The Hassayampa River Canyon Wilderness borders the proposed project area on the southeast.

Natural conditions and wilderness values present on the approximate 8,300 acres of land proposed for wilderness would be temporarily impacted over a five to ten year period by conducting multiple fuels treatments. Impacts would be short-term. The overall impact on naturalness would be mitigated to a great degree by the incremental and mosaic nature of the prescribed burning activities. The treatment activities would occur over a period of five to ten years, and effectively minimize potential impacts on natural conditions as perceived by the casual observer.

The visitor would initially see the burn area as unnatural; continuous re-growth would minimize that perception. Over the long-term the various treated areas would imitate natural plant conditions and would not be noticeable to the average observer. Natural conditions and plant cover appearance would be enhanced over the long-term. There would be no permanent impacts to naturalness.

The quality of solitude and primitive recreation opportunities within the area proposed for wilderness study would be impaired during fire treatment operations for a period of three to five days annually. Hikers, hunters and campers would avoid burned areas or skip visiting the area altogether. Solitude would not be greatly impacted over the short or long-term. Primitive recreation opportunities like hiking and hunting would improve as the country is opened up and more game animals are present.

There would be short-term and temporary impacts on wilderness values within the adjacent Hassayampa River Canyon Wilderness, there would be no impact on its valuable riparian or paloverde plant communities. Wilderness visitors would be subject to the sights, sounds and smells of fire management operations on public lands next to the wilderness. Smoke would impair visibility and restrict vistas. Visitors would smell smoke as it drifted down slope or down wind and settled into the lower elevation washes and river canyon within the wilderness. Noise, sight, smell and visual impacts would last three to five days annually over ten years. Over the long-term, wilderness values could be slightly impaired for up to fifty- (50) days. There would be no permanent or adverse impacts to naturalness, solitude, primitive recreation or supplemental wilderness values over the short or long-term.

The potential for catastrophic wild fires entering the wilderness would be greatly reduced. The Hassayampa River Canyon Wilderness is lower in elevation than the proposed project area and is dominated by a fire-intolerant paloverde-saguaro Sonoran Desert community and riparian vegetation. This fuels treatment regimen would reduce the potential of an uncontrolled wild fire igniting within the higher interior chaparral areas and spreading into the wilderness area's Sonoran Desert upland and riparian plant communities. The proposed fuels treatment(s) could assist in the long-term preservation of wilderness values associated with the area's natural paloverde-saguaro community and riparian areas.

## Special Status Species

### General

Special status species include those species listed as threatened or endangered under the Endangered Species Act of 1973 (ESA), proposed for listing under ESA, candidates for listing under ESA, BLM sensitive species, and State listed species (Wildlife of Special Concern in Arizona). The Arizona Game and Fish Department's Heritage Data Management System (AGFD HDMS) and BLM Threatened and Endangered Species databases were accessed for records of special status species occurrences in the proposed project area.

ESA Section 7 (a)(2) requires federal agencies in consultation with the U.S. Fish and Wildlife Service, to determine whether proposed actions are likely to jeopardize the continued existence of a listed species, or destroy or adversely modify critical habitat. BLM policy further directs this agency conserve listed species and their ecosystems; manage species proposed for listing with the same level of protection provided for listed species; ensure all actions authorized, funded, or carried out by BLM do not contribute to the need to list candidate or BLM sensitive species; and carry out management for the conservation of State listed species (BLM Manual 6840).

### Threatened, Endangered, Proposed, or Candidate Species

The U.S. Fish and Wildlife Service list of threatened endangered, proposed, and candidate species for Yavapai County, AZ includes seventeen species that were evaluated for the proposed project area. It was determined that no threatened, endangered, or proposed species would be affected by the proposed treatments because they are known not to occur in the project area and/or the project area does not contain habitat for these species (see the Threatened, Endangered, and Sensitive Species Clearance Report in the Project Planning Record, Specialist Report Section). There is no designated critical habitat for threatened, endangered, or proposed species in the project area.

Potential habitat for one candidate species, the yellow-billed cuckoo (*Coccyzus americanus occidentalis*), occurs along riparian areas in the proposed project area. Although no yellow-billed cuckoo surveys have been conducted within the project area, this species has been documented near the project area (AGFD HDMS). Yellow-billed cuckoos are summer residents (mid-June to late August) in Arizona.

### BLM Sensitive Species

California Flannelbush (*Fremontodendron californium*), a native, evergreen shrub, is widespread in California chaparral but occurs more rarely in interior chaparral. This species has been documented within and near the proposed project area (AGFD HDMS).

Potential habitat for two native fish species, the longfin dace (*Agosia chrysogaster*) and desert sucker (*Catostomus [Pantosteus] clarki*), occurs in segments of those streams with more permanent water in the proposed project area (Spring Creek and Cottonwood Creek). Both species have been documented near the project area (AGFD HDMS).

#### State Listed Species

Habitat for lowland leopard frogs (*Rana yavapaiensis*) occurs in springs and segments of those streams with more permanent water in the proposed project area (Spring Creek and Cottonwood Creek). Lowland leopard frogs have been documented within and near the project area (AGFD HDMS).

Portions of the proposed project area are designated as Category II and III desert tortoise (*Gopherus agassizii*) habitat. The BLM groups tortoise habitat into three categories based on the following four criteria: (1) importance of the habitat to maintaining viable populations, (2) resolvability of conflicts, (3) desert tortoise density, and (4) population status (stable, increasing, or decreasing—Spang et al. 1988). These categories range from the most valuable and protected habitat (Category I) to the least valuable and protected (Category III). Category designations in the project area were based on elevation, and are not definitive, nor did they preclude the need for a site-specific field evaluation. The Sonoran desert tortoise could potentially occur within the treatment area but most likely at lower elevations in areas dominated by desertscrub vegetation along the western and southern boundaries of the project area. Desert tortoises have not been documented within the project area but have been documented near the southern boundary of the project area (AGFD HDMS).

#### Alternative 1- No Action

Under the No Action alternative, special status species would not be directly or indirectly affected by management-ignited fire. There would be no direct displacement or mortality and/or indirect loss or degradation of riparian, aquatic, or adjacent desertscrub habitat as a result of management-ignited fire.

However, by excluding management-ignited fire, there would be little reduction in the potential for large summer wildfires in the proposed project area. In the event of a wildfire, the heavy fuel loads and summer weather patterns would likely create fire conditions that would be more severe, and suppression measures would require a greater effort than if fuel loads were reduced. Special status species could be more severely impacted by large wildfires and associated suppression activities (e.g., fire line construction, retardant drops) than is desirable in the project area. These impacts could include displacement, mortality, and adverse loss or modification of habitat (e.g., cover and food resources). Wildfires could be more detrimental because they could occur during critical reproductive periods for some species.

A summer wildfire could destroy riparian vegetation and impact aquatic areas, which provide or potentially provide habitat for yellow-billed cuckoos, longfin dace, desert suckers, and lowland leopard frogs. Yellow-billed cuckoo nests could be destroyed by fire (assuming they nest within the project area). Burning riparian vegetation would reduce available riparian habitat, increase stream bank erosion, raise water temperatures, and reduce oxygen levels (Wright and Bailey 1982). These impacts could be detrimental to yellow-billed cuckoos, longfin dace, desert suckers, and lowland leopard frogs in the project area, especially if a large portion of the available riparian areas were burned.

Fire would top-kill California flannelbush. However, flannelbush is well adapted to recurrent fires with its abundant seed production, prolific sprouting, and rapid growth (Pavek 1993). Seeds can spread via animal or wind into fire-opened areas. It is expected that surviving lignotubers would sprout and seedlings would establish following fire. In California chaparral, a management-ignited fire top-killed

flannelbush. Resprouting and seedling establishment were observed within two months after the fire (Pavek 1993). It is reasonable to assume that flannelbush would respond similarly in the proposed project area.

A summer wildfire ignited in interior chaparral could conceivably spread into adjacent desertscrub vegetation and result in mortality of desert tortoises and cause adverse impacts to tortoise habitat, including temporary loss of forage, a shift in forage species, and loss of perennial plants that provide thermal cover and cover from predators (Esque et al. 1995). Desertscrub vegetation is not fire-tolerant, and burning desertscrub vegetation could cause long-term adverse changes to tortoise habitat, including conversion into exotic annual grassland.

## Alternative 2 – Proposed Action

The use of management-ignited fire provides the greatest potential for focused work to restore wildlife habitat and reduce the threat of large summer wildfires. Fire can be planned to occur under conditions that maximize benefits to wildlife and habitat, and minimize fire-related impacts to special status species. Proposed action mitigation measures would reduce treatment-related impacts to special status species.

Yellow-billed cuckoos would not be directly or indirectly affected by the proposed action because they would not be present during the time period (October–March) when the treatments would be implemented (assuming they occur within the project area), and management-ignited fire would be excluded from riparian areas.

The impacts to California flannelbush under Alternative 2 - Proposed Action are the same as those discussed under Alternative 1 - No Action.

The treatments are not expected to adversely impact longfin dace, desert suckers, and leopard frogs. Mitigation measures (see Proposed Action mitigation measures 1, 2, and 4) would protect riparian vegetation and maintain unburned patches of vegetation in upland areas. There would be low potential for soil erosion into aquatic areas.

The treatments are not expected to result in direct mortality of desert tortoises or cause indirect adverse impacts to tortoise habitat, including loss of forage, thermal cover, and hiding cover. Any tortoises occurring in the treatment area would likely be hibernating in protected areas during the time period when treatments would occur. Proposed Action mitigation measure number 3 would minimize potential adverse impacts to desert tortoises. These treatments would reduce the likelihood of a wildfire ignited in interior chaparral from spreading to and burning adjacent fire-intolerant desertscrub vegetation. A summer wildfire occurring in interior chaparral would have a greater potential to spread into desertscrub vegetation than would a management-ignited fire. Management-ignited fires occur under favorable conditions and are less intense and more controllable than summer wildfires. Consequently, the proposed project would likely have fewer potential negative impacts for tortoises than a summer wildfire.

## General Wildlife

### General

The interior chaparral community and associated riparian areas provide habitat for a variety of wildlife species in the proposed project area. Resident mammal species associated with this community

include, but are not limited to, mule deer (*Odocoileus hemionus*), collared peccary (*Tayassu tajacu*), mountain lion (*Puma concolor*), coyote (*Canis latrans*), eastern cottontail (*Sylvilagus floridanus*), brush mouse (*Peromyscus boylii*), and woodrat (*Neotoma* spp.). Resident bird species include the common bushtit (*Psaltiriparus minimus*), scrub jay (*Aphelocoma coerulescens*), American kestrel (*Falco sparverius*), red-tailed hawk (*Buteo jamaicensis*), and great horned owl (*Bubo virginianus*). Summer resident bird species include the black-chinned sparrow (*Spizella atrogularis*), rufous-sided towhee (*Pipilo erythrophthalmus*), and gray vireo (*Vireo vicinior*). Resident reptile and amphibian species include the eastern fence lizard (*Sceloporus undulatus*), desert striped whipsnake (*Masticophis taeniatus*), western rattlesnake (*Crotalus viridis*), and red-spotted toad (*Bufo punctatus*). The closed aspect of the upland vegetation community limits its availability to all but the smaller species.

Riparian areas comprise only a very small portion of the total project area. Nonetheless, these areas are extremely important and have diverse habitat values for wildlife species (Kie et al. 1996). They provide structure and diversity critical for nesting, resting, thermal and escape cover, as well as food and water for a wide variety of wildlife species (Omart and Anderson 1987, Jones 1988). Riparian areas are not targeted for treatment.

### Alternative 1 – No Action

Under the No Action alternative, wildlife species would not be directly or indirectly affected by management-ignited fire. There would be no direct displacement or mortality and/or indirect loss or modification of habitat as a result of management-ignited fire. Habitat diversity would remain unchanged, as dense even-aged stands of interior chaparral would continue to dominate the proposed project area.

However, by excluding management-ignited fire, there would be little reduction in the potential for large summer wildfires in the proposed project area. In the event of a wildfire, the heavy fuel loads and summer weather patterns would likely create fire conditions that would be more severe, and suppression measures would require a greater effort than if fuel loads were reduced. Wildlife species could be more severely impacted by large wildfires and associated suppression activities (e.g., fire line construction, retardant drops) than is desirable in the project area. These impacts could include displacement, mortality, and adverse loss or modification of habitat (e.g., cover and food resources). Wildfires could be more detrimental because they could occur during critical reproductive periods for some species.

The ability of wildlife to survive a fire depends upon the season, uniformity (or patchiness), severity and intensity of the burn, and the size and duration of the fire, as well as the animal's mobility and habitat use patterns. Mobile wildlife species, such as large mammals and birds, would be able to avoid direct fire-related mortality. Less mobile wildlife species, such as small mammals and reptiles, could suffer higher mortality. However, they could seek refuge in protected areas (e.g., underground burrows and rocky areas). Woodrats construct surface-level houses and are particularly susceptible to fire-caused mortality because of a reluctance to leave their houses. While fire-caused mortality could be high for small mammals, their high reproductive potential enables them to increase rapidly in favorable environments and disperse readily into burned areas (Smith 2000). Cunningham et al. (2002) reported that lizard species (e.g., eastern fence lizard and others) survived a large severe wildfire in interior chaparral and rapidly settled burned areas. A large-scale wildfire would substantially reduce thermal, escape, and hiding cover and forage availability for wildlife species over the short-term. Predators, such as raptors, would be attracted to the burned area and predation rates could increase. Wildfires that occur during the reproductive season, burn large areas, and/or burn riparian habitat would be most detrimental to wildlife species in the project area.

## Alternative 2 – Proposed Action

The use of management-ignited fire provides the greatest potential for focused work to restore wildlife habitat and reduce the threat of large summer wildfires. Fire can be planned to occur under conditions that maximize benefits to wildlife and habitat, and minimize fire-related impacts to special status species. Mitigation measures under the Proposed Action would reduce treatment-related impacts to wildlife species.

The ability of wildlife to survive a fire depends upon the season, uniformity (or patchiness), severity and intensity of the burn, and the size and duration of the fire, as well as the animal's mobility and habitat use patterns. Treatment-related impacts would include direct displacement and limited mortality of resident wildlife species. Mobile wildlife species, such as large mammals and birds, would be able to avoid direct fire-related mortality. Small mammals and reptiles, could suffer higher mortality. However, these species could seek refuge in protected areas (e.g., underground burrows, rocky areas, unburned patches). The high reproductive potential of many small mammal species enables their populations to rebound quickly after disturbances such as fire. Treatments would be implemented from October to March thereby avoiding critical reproductive periods for most wildlife species. Based on the timing and nature of the proposed treatments, direct fire-related mortality is not expected to be detrimental to wildlife species in the proposed project area.

The proposed treatments would result in a mosaic of mixed-age class vegetation in the project area. Wildlife species associated with early successional habitat would be favored. The treatments are expected to improve habitat for mule deer by creating a mosaic of burned and unburned patches, increasing access and detectability of predators, and improving forage conditions. Expected increases in grass and forb cover early in post-fire succession would benefit a variety of mammal, bird, and reptile species. Unburned patches and buffers along riparian areas would maintain thermal, escape, and hiding cover and forage availability for mule deer, collared peccaries, small mammals, birds, and other species. Treatments would likely increase short-term quantity of food available to predators. The proposed treatments would reduce the likelihood of large summer wildfires spreading through the project area and impacting wildlife species by eliminating or reducing thermal, escape, and hiding cover and forage availability. Wildlife species requiring dense vegetation (e.g., woodrat, brush mouse, common bushtit, and scrub jay) are not expected to be adversely impacted. Unburned patches of dense vegetation would leave cover and available forage for these species. Habitat diversity is expected to be enhanced in the project area.

## Vegetation

### General

Vegetation within the proposed project area is dominated by interior chaparral. Common shrubs include Sonoran scrub oak (*Quercus turbinella*), desert ceanothus (*Ceanothus greggii*), skunkbush sumac (*Rhus trilobata*), manzanita (*Arctostaphylos* spp.), and mahogany (*Cercocarpus* spp.). This vegetation community forms dense to moderately open shrub stands over the project area. Shrub canopy cover averages >50%. Grasses and forbs are scarce in this community, however perennial grasses (e.g., sideoats gramma [*Bouteloua curtipendula*], plains lovegrass [*Eragrostis intermedia*], threeawn [*Aristida purpurea*]) are more common on relatively open south-facing slopes and rocky outcrops. Riparian and xeroriparian vegetation occur along drainages within the project area.

Arizona cypress (*Cupressus arizonica*), a native, evergreen tree, occurs on slopes and along riparian zones within the project area. Arizona cypress is the least fire-tolerant of all trees and shrubs in the



chaparral zone (Carmichael et al. 1978). Arizona cypress reproduces exclusively from seed. Serotinous cones persist on trees for years until opened by the heat of a fire. Seeds are shed gradually over several months and require bare mineral soil for germination and seedling establishment (Sullivan 1993). Cypress seedlings are shade intolerant and survive best in full sunlight on bare mineral soils. Fire plays a necessary but delicately balanced role in cypress life history. Too frequent fires can destroy a grove, but elimination of fire may lead to its extinction (Sullivan 1993).

#### Alternative 1 – No Action

Under the no action alternative, fire would not be allowed to play its natural role in this fire-adapted community. Vegetation conditions would remain relatively unchanged. Extensive, dense even-aged stands of interior chaparral would remain. Grasses and forbs would remain scarce. Plant species diversity would be limited in the project area as a result of continued fire suppression. Small stands of Arizona cypress could be eliminated by catastrophic wildfire over the long-term.

Fire and fuels managers would be prevented from using prescribed fire to reduce hazardous fuel accumulations in the project area. Consequently, the threats posed to firefighter safety large catastrophic wildfires would remain at a high level.

#### Alternative 2 – Proposed Action

Interior chaparral shrub species have evolved mechanisms for regenerating successfully after fire by sprouting and/or by fire-stimulated germination of seeds. Sonoran scrub oak, silktassel, skunkbush sumac, and mahogany resprout vigorously in response to fire (Pase and Granfelt 1977, Uchytel 1990, Tirmenstein 1999). Although sprouting is the most common form of regeneration after fire treatment, seedling establishment may occur in Sonoran scrub oak, silktassel, and mahogany (Uchytel 1990, Marshall 1995, Tirmenstein 1999). Desert ceanothus, and manzanita are obligate post-fire seeders (Pase and Granfelt 1977). Their seeds lie dormant in the soil seed bank until fire-related cues induce germination. Post-treatment vegetation regeneration rates may be rapid (1–3 years—Carmichael et al. 1978).

It is expected that within the first one or two growing seasons after implementation, all pre-treatment dominant shrub species would be present in the form of resprouts or seedlings. Post-treatment cover conditions are expected to return to pre-treatment levels within 8–12 years or perhaps longer depending upon precipitation levels and other factors (Carmichael et al. 1978). Grasses and forbs are expected to increase early in post-treatment succession; they would be gradually eliminated as the dense overstory of shrubs matures.

Arizona cypress trees along riparian zones would be protected because fire would not be applied to these areas. The small stands of cypress on slopes within the project area could be eliminated by fire because of the dense chaparral fuel loadings that exist immediately adjacent to these stands. Dense chaparral fuels surrounding Arizona cypress stands would need to be reduced or removed prior to burning to reduce the potential for elimination of entire cypress stands within the project area. Black-lining or avoidance of these areas could be necessary.

Long-term effects would be the reduction of hazardous fuel accumulations in the project area. The resulting post-treatment mosaic of mixed-age class vegetation would provide an effective barrier to large-scale fire spread. Treated areas would remain relatively resistant to fire for 15–20 years (Pase and Granfelt 1977). Consequently, the threats posed to firefighter safety from large catastrophic wildfires occurring in the project area would be reduced for several decades.

## **CONSULTATION AND COORDINATION**

Below is a brief description of the public and internal involvement completed for this and the issues and concerns identified during the public involvement period.

At the PFO weekly staff briefing in November 2002, the proposed project description, the purpose and need statement and project map were available for review. The proposed project was discussed with those in attendance, BLM Specialists and Management Staff.

A BLM interdisciplinary team of natural resource specialist in fuels, archeology, wildlife, and rangeland management convened and completed their own internal scoping effort. The issues, concerns and opportunities that the specialists identified were used to develop the public involvement statement.

The public was invited to comment on the management proposal and to identify issues or concerns about the action. Public involvement letters were sent on December 10, 2002 to 530 interested members of the public inviting them to comment on the proposed action. The public involvement letter included a site-specific description of the area, the proposed action and a map of the project area. A total of six (6) individuals/groups responded all six were in favor of the proposed action. Two (2) letters received from tribal entities identified concerns for the protection of prehistoric archaeological sites and cultural properties and expressed a desire that proper surveys were conducted prior to project implementation. Two (2) additional letters were received which identified concerns for the protection and maintenance of riparian habitat for Special Status Species and protection of possible sensitive plant species by Tribal governments. One (1) had concerns for the protection of the Desert Tortoise and riparian areas; along with ensuring that permitted livestock grazing is not permitted until regeneration has occurred. The last commenter was in full support to see the BLM doing fuels reduction projects.

The ID team reviewed these comments for issues that might require the development of an additional alternative and determined that there were no responses from the public involvement showed unresolved conflicts regarding the use of management ignited fire (see Glossary) in the Weaver Mountain area that would require the development of a new alternative.

Press releases describing the proposed project were published in the Arizona Republic Newspaper, on January 16, 2003.

## Agencies and Persons Consulted

The BLM consulted the following individuals, Federal, State and local agencies, and tribes during the development of this document. A list of all agencies and persons consulted during the development of this document are available in Mail Lists/Letter to the Public section located in the Project Planning Record/File.

### BLM Interdisciplinary Core Team

Sherry Hirst	Zone Fuels NEPA Planner and Environmental Coordinator
Wade Reaves	Zone Fuels Specialist
William Boyett	Zone Fuels Wildlife Biologist
Jerica Richardson	Zone Fuels Archaeologist
Rich Hanson	Phoenix Field Office Wilderness Specialist
Clay Templin	Phoenix Field Office Lead Natural Resource Specialist

### BLM Interdisciplinary Contributing Team

Glenn Joki	Fire Management Officer, Public Contact Project Lead
Connie Stone	Phoenix Field Office Archaeologist
Nancy Guerrero	Phoenix Field Office External Affairs Specialist
Bruce Olson	Phoenix Field Office Fuels Technician
Nancy Ruiz	Zone Administrative Assistant

### Tribes

Mr. Chris Coder, Yavapai-Apache Nation	Mr. Stan Rice, Jr., President, Yavapai-Prescott Tribe
Ms. Nancy Hayden, Yavapai-Prescott Tribe	
Mr. Vincent Randall, Chairman, Yavapai-Apache Nation	Mr. Wayne Taylor, Jr., Chairman, The Hopi

### Permittees/Leasees

Terrel and Deborah Morris	David McKim
Thomas and Mary Hamill	Delmer and Lavonne Zwegardt
Ben Jaffee Revocable Trust	Jack and Laura Culp
Rhenium Corporation	Bromm Wickenburg LLC
Charles Pierce	Whitehead Partnership
Southwestern Mining	Stith Mining
Bassett Construction	John Cooper

### Persons/Agencies who Commented

The Hopi Tribe	Phoenix Zoo
US Fish & Wildlife Service	Public Lands Foundation
Yavapai-Prescott Indian Tribe	Arizona Game and Fish Department